

Claims

1. A method for coating an implant device, comprising:
coating the implant device with a protein;
5 covalently immobilizing a first substance having an amino
group to the protein; and
adsorbing a bisphosphonate substance to the first substance,
the first substance being different from the bisphosphonate
substance.
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2. The method according to claim 1 wherein the immobilizing
step comprises covalently linking a reactive group such as an
amino group of bisphosphonate to the protein.
- 15 3. The method according to claim 1 wherein the adsorbing step
comprises using a chemically non-reactive bisphosphonate.
4. The method according to claim 1 wherein the coating steps
further comprises using a cross-linked protein.
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5. The method according to claim 1 wherein the method further
comprises etching a surface of the implant device.
6. The method according to claim 1 wherein the method further
25 comprises creating a plurality of protein layers by cross-
linking the protein layers with by ethyl-dimethyl-
aminopropylcarbodiimide (EDC) and hydroxy-succinimide (NHS).
7. The method according to claim 1 wherein the coating step
30 further comprises immobilizing a first protein layer onto a
surface of the implant device via an attachment of amino
propyl triethoxy silane (APTES).

8. The method according to claim 7 wherein the coating steps further comprises using glutaraldehyde to chemically bind the APTES and glutaraldehyde to amino groups of the first protein layer.

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9. An implant device, comprising:

a multilayer of protein chemically bound to a surface of the implant device;

a chemically immobilizable bisphosphonate layer covalently

10 bound to the protein film; and

a chemically non-reactive bisphosphonate layer non-covalently bound to the first bisphosphonate layer.

10. The implant device according to claim 9 wherein the

15 second bisphosphonate layer is bound to the protein film only by non-covalent interactions.